



# ***KDHE—GEOLOGY SECTION CALENDAR YEAR 2013 ANNUAL REPORT***

Geology Section Chief, Mike Cochran, L.G.

*April 2014*

The Geology Section within the Kansas Department of Health and Environment (KDHE), Bureau of Water administers the Underground Injection Control (UIC), the Underground Hydrocarbon Storage and Associated Brine Storage Ponds (UHS), and Water Well Licensing, Water Well Construction and Abandonment programs. These programs are interrelated and support one another. Many projects are addressed as a team by the Geology Section since there are often implications for all three programs.

The overall objective of these programs is to protect the public health and safety and the waters and soils of the state by preventing releases from injection wells, hydrocarbon storage wells and brine storage ponds and by preventing contamination from improperly constructed or abandoned water wells. The activities listed herein support this objective.

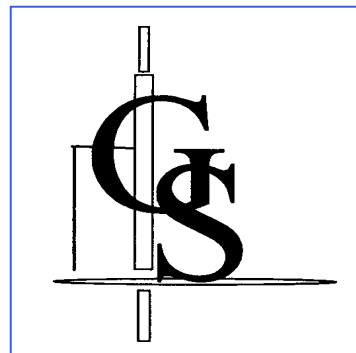
On the following pages you will learn more about the significant activities of the programs administered by the Geology Section. In addition, the Geology Section performs outreach, training, distribution of information, and provides hydrogeologic support to environmental programs in the Bureau of Water, federal, state and local agencies. We have also listed some important facts for the programs administered by the Geology Section as well as significant accomplishments. The Geology Section continually strives to enhance the effectiveness of these programs. If you have questions or comments, please let us know.

***Michael H. Cochran, Chief of Geology***

*Administrative Assistant Staff:*

Debra Biester, [dbiester@kdheks.gov](mailto:dbiester@kdheks.gov)

Kansas Department of Health & Environment  
Bureau of Water—Geology Section  
1000 S.W. Jackson Street, Suite 420  
Topeka, Kansas 66612-1367  
Phone: (785) 296-5524  
Fax: (785) 296-5509



**<http://kdheks.gov/geo>**

# *Underground Injection Control (UIC)*

## *Information for Calendar Year 2013*

The UIC Program regulates injection well activities including the disposal of industrial wastes into deep geologic formations, the solution mining of salt formations, and the shallow injection of non-hazardous fluids below the land surface.



*Newly Installed Groundwater Monitoring Wells for a Salt Solution Mining Facility*

Unit Chief, Cynthia Khan, L.G.

### *Some significant activity numbers:*

- 62 Inspections conducted
- 45 Mechanical integrity tests witnessed
- 101 Class V aquifer remediation well/geoprobe authorization requests reviewed
- 14 Permit applications reviewed
- 8 Permits placed on public notice and issued
- 101 Wireline well logs of various types reviewed
- 776 Monitoring records reviewed
- 100 Well test plans reviewed
- 107 Mechanical integrity test reports reviewed

### *A Few Program Statistics:*

- 50 Active Class I industrial waste disposal wells
- 142 Active Class III salt solution mining wells
- 6,800 Active Class V (shallow) injection wells in the KDHE inventory
- 3.9 Billion gallons of wastefluids safely injected into Class I wells
- 1.5 Billion gallons of brine safely produced from Class III wells



### *UIC Staff:*

Cynthia Khan, Kansas Licensed Geologist  
ckhan@kdheks.gov

*Conducting a Pressure Test on a Deep Injection Well*

# *Underground Hydrocarbon Storage (UHS)*

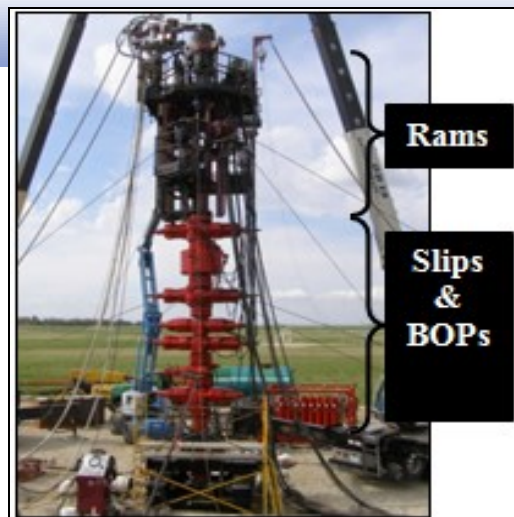
## *Information for Calendar Year 2013*

The Underground Hydrocarbon and Natural Gas Storage Program regulates the storage of hydrocarbons, including liquefied petroleum gas (LPG) and natural gas, in salt caverns formed by solutioning in the Hutchinson Salt. The program also regulates the brine ponds associated with the underground storage facilities.

Unit Chief, Mark Jennings, L.G.

### *Some significant activity numbers:*

- 4 Facility audits conducted
- 263 Storage wells inspected
- 47 Brine ponds inspected
- 6 New storage wells drilled
- 8 Applications received to renew brine pond permits
- 1 New brine pond constructed
- Plans and Reports Received/Reviewed:
  - ◆ 79 MIT plans
  - ◆ 105 Final MIT reports
  - ◆ 50 Workover plans
  - ◆ 164 Final workover reports
  - ◆ 36 Groundwater monitoring reports
  - ◆ 3 Groundwater monitoring plans
  - ◆ 176 Brine pond monitoring reports
  - ◆ 156 Wireline logs reviewed
  - ◆ 27 Sonar surveys reviewed
  - ◆ 1 Well plugging plan received/approved



*Blowout Preventer (BOP) on  
a Storage Well*

### *A few program statistics:*

- 9 LPG facilities
- 384 Active LPG wells
- 94 LPG wells in monitoring status
- 22 Wells in wash status
- 47 Active brine storage ponds
- 398 Groundwater monitoring wells
- 1 Natural gas facility (inactive)
- 98 Natural gas wells (all in monitoring status)
- 74+ Million Barrels of LPG storage capacity
- 38.87 Million barrels brine pond capacity

### *UHS Staff:*

Mark Jennings, Kansas Licensed Geologist  
mjennings@kdheks.gov  
Jeffrey Hand, Environmental Scientist  
jhand@kdheks.gov



*April 2014*



# *Water Well*

## *Information for Calendar Year 2013*

The Water Well Program licenses water well contractors and regulates water well construction, plugging and abandonment.



*Drilling a Geothermal Well*

Unit Chief, Richard Harper, L.G.

### *A few program statistics:*

- 5,022 Water wells constructed
  - ◆ 2,893 were domestic
  - ◆ 1,147 were monitoring
  - ◆ 512 other
- 1,546 Water wells plugged
- 240 Licensed water well contractors
- 218 Oil drill rig water supply wells
- 252 Geothermal heat exchange systems installed

### *Some significant activity numbers:*

- 38 Waiver requests for 261 wells reviewed
- 220 Contractor licenses reissued
- 10 New contractor's licenses issued
- 377 Drilling rig licenses issued
- 6,630 Water well record forms (WWC-5) reviewed for compliance
- 13 Complaints investigated

### *Water Well Staff:*

Richard Harper, Kansas Licensed Geologist  
rharper@kdheks.gov

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# *Administrative Assistant*

## *Information for Calendar Year 2013*

The Administrative Assistant provides both support to the Geology Section professional staff and customer service to the public and entities outside the Section.

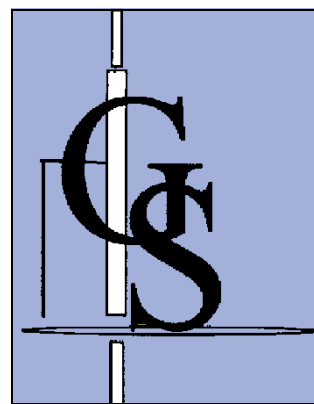
**Deb Biester, Administrative Specialist**

### ***Support for special projects including:***

- KOLAR—Kansas Online Automated Reporting System for water well record form WWC-5 (in conjunction with Kansas Geological Survey)
  - On going publication of KOLAR Web site
  - 58 Water Well Contractors utilizing site
- Potential Abandoned Wells notifications (in conjunction with Division of Water Resources)
  - 1,417 Letters processed
- WWC-5 Water Well Record Forms
  - 5,183 Forms processed
- Geology Section Safety Captain
- UIC Filing
- Geology Section Annual Seminar
- Water Well Contractor Licensing
  - 230 Renewal letters processed
  - 1,132 Licenses (contractor & rig) processed
- Forms Development
- Provide Kansas Geological Survey documents analyzing Arbuckle.
- Facilitated KDHE Bureau of Water Administrative Assistant Quality Improvement Project.

### ***Customer service:***

- Web site development and updates—on going; including fillable pdf forms, maps, directions, notices, procedure and guidance documents, etc.
- 5 File reviews/copying documents
- Geology Newsletter and Annual Report
- Cross training to acquire more knowledge of section programs to provide better service to customers
- E-mail notifications regarding Geology Section Events and Program Changes



### ***Administrative Staff:***

Deb Biester, Administrative Specialist  
dbiester@kdheks.gov

*April 2014*

# GEOLOGY SECTION

## *Information for Calendar Year 2013*

### **ENFORCEMENT ACTIONS**

The Geology Section works vigorously with operators to achieve compliance with state and federal environmental statutes and regulations. The regulatory programs rely upon inspections and monitoring to determine compliance. Operators usually correct compliance problems quickly and effectively; however, there are some instances in which KDHE must issue administrative orders or monetary penalties to obtain compliance.

#### **UNDERGROUND INJECTION CONTROL PROGRAM**

The UIC Program – There were 10 Class I well violations that consisted of lack of financial assurance, loss of annulus pressure, exceedence of daily volume and exceedence of ph. Four Class III wells exceeded dimensions and 1 Class V well had an unauthorized injection. These non-compliance incidents were resolved.

#### **UNDERGROUND HYDROCARBON STORAGE PROGRAM**

The UHS Program – January 1 through December 31, 2013: While there was an increase in the number of reported brine releases due to increased operator awareness and reporting of very small spills (0.25 - 5 gallons) the overall volume released was a 60 percent reduction from 2012. This resulted in approximately 158 barrels (6,636 gallons) being release to the environment. The majority of these releases resulted from line leaks. KDHE continues working with the storage industry to reduce these numbers even further. Industry continues to properly cleanup these releases to minimize the impact to the environment. In order to prevent spills the industry has replaced or plastic slip lined a number of brine lines and this activity continues.

#### **WATER WELL PROGRAM**

The Water Well Program – Eight water well contractor licenses were revoked for failure to complete the requirements for license renewal.

# GEOLOGY SECTION

## *Information for Calendar Year 2013*

### **PROGRAM FEES COLLECTED**

The Geology Section collects fees from the regulated community in some cases to fund or partially fund its regulatory programs. These fees are established by statute and implemented by KDHE through the appropriate program regulations.

#### **UNDERGROUND INJECTION CONTROL PROGRAM**

The Class III Salt Solution Mining companies are assessed annual fees in the amount of \$12,000 per facility and \$175 per unplugged salt solution mining well. This resulted in a total of \$74,425.00 being collected. These fees are directed to the Salt Solution Mining Fee Fund.

#### **UNDERGROUND HYDROCARBON STORAGE PROGRAM**

The storage companies are assessed annual fees in the amount of \$18,890 per facility and \$305 per unplugged storage well. A fee of \$700 for each new well permit application is also assessed. This resulted in a total of \$375,560 being collected. These fees are directed to the Subsurface Hydrocarbon Storage Fund.

#### **WATER WELL PROGRAM**

Annual fees of \$100 per water well contractor's license and \$25 per drilling rig are assessed. This results in a total of \$33,425 being collected from these sources. In addition, a fee of \$5 per WWC-5 water well record filed for each constructed and reconstructed well is charged, which generated \$25,110. A \$10 test application fee is also charged for each time a license test is taken by a new contractor. An incidental amount is collected from this. These fees are directed to the State General Fund.

# GEOLOGY SECTION

## *Information for Calendar Year 2013*

### OUTREACH ACTIVITIES

An effective method of achieving protection of the public health, safety and the environment is to educate the industry and public. The Geology Section accomplishes this by increasing access to the Geology Section programs and providing information to the regulated community and the public.

Listed below are some of the outreach activities conducted by the Geology Section.

- ◆ Sponsored a fall seminar on water, energy and environmental topics, with approximately 130 participants.
- ◆ Maintained a booth providing information on Geology Section programs at the Kansas Groundwater Association (KGWA) Annual Exposition and Convention.
- ◆ Gave a presentation on the Water Well Construction Requirements at the KGWA Annual Exposition and Convention.
- ◆ Gave a presentation on well construction requirements/Water Well Program at KGWA Spring and Fall Technical Seminars.
- ◆ Gave presentation on Induced Seismicity and legacy cavern projects at KGWA Annual Exposition and Convention and T&C MFG sponsored technical seminar.
- ◆ Met with 12 Local Environmental Protection Programs at their offices to exchange Water Well Program information.
- ◆ Provided Class I Disposal Well Monitoring training to several companies with approximately 70 participants.
- ◆ Spring and fall Geology Section newsletters were developed and distributed.
- ◆ Conducted a roundtable discussion of the UHS regulations and program with the Underground Hydrocarbon Storage Industry

In addition, the Geology Section maintains an active membership in the following professional organizations:

- Kansas Ground Water Association
- Solution Mining Research Institute
- Groundwater Protection Council
- National Ground Water Association

Geology Section staff served on the following workgroups and committees:

- Kansas Corporation Commission Oil and Gas Advisory Committee
- Kansas Ground Water Association Board
- EPA/States UIC Database Workgroup
- KCC/KDHE Interagency Coordination Workgroup
- Kansas Corporation Commission Hydraulic Fracturing Regulation Development Workgroup